

## 1998 GRASSHOPPER MANAGEMENT PLAN STATE OF SOUTH DAKOTA

I. <u>SOUTH DAKOTA GRASSHOPPER MANAGEMENT COMMITTEE</u>
II. <u>GRASSHOPPER MANAGEMENT TRAINING</u>
III. <u>EMERGENCY DESIGNATION</u>
IV. <u>INFORMATION AND EDUCATION/PUBLIC AWARENESS</u>
V. <u>SURVEY AND MONITORING</u>
VI. <u>CONTROL PROGRAM RESPONSIBILITIES</u>
VII. <u>CONTROL PROGRAM FUNDING ALTERNATIVES</u>
VIII. <u>MANAGEMENT TOOLS</u>
IX. <u>TECHNOLOGY TRANSFER</u>
X. <u>ENVIRONMENTAL CONSIDERATIONS</u>
XI. <u>BEEKEEPER RELATIONS</u>
XII. <u>PROGRAM ASSESSMENT</u>
XIII. <u>RESEARCH</u>

### **I. South Dakota Grasshopper Management Committee**

A 15 person steering committee has been appointed by the Secretary of Agriculture to address the risk of severe grasshopper problems in South Dakota. The economic impact of threatening grasshopper populations on South Dakota agriculture is enormous. The group will facilitate communication across the agricultural industry in the state through the exchange of accurate and timely information.

The grasshopper management committee objectives are as follows:

- A. Maintain an advisory role to the Secretary of Agriculture regarding federal, tribal, state and local grasshopper management issues.
- B. Foster grasshopper management through a statewide partnership with producers, land managers and the public.
- C. Finalize and ensure implementation of the South Dakota Grasshopper Management Plan.
- D. Support the transfer of new and applicable grasshopper management technologies, providing viable solutions to grasshopper problems.
- E. Identify and prioritize grasshopper research needs and funding opportunities.

Composition of the grasshopper management committee includes the following representation:

Don Fletcher, Farmer/Rancher, Lyman County, South Dakota  
Bruce Helbig, State Plant Health Director, USDA, APHIS, PPQ

Mike Cantangui, Entomologist, South Dakota Cooperative Extension Service  
 Billy Fuller, Researcher, SDSU Agriculture Experiment Station  
 Kelly Fortune, Representative, SD Weed and Pest Control Commission  
 Lynn Deibert, Chairman, SD Association of County Weed and Pest Boards  
 Andy Canham, President, SD Association of County Weed and Pest Supervisors  
 Pete Gober, Field Supervisor, United States Fish and Wildlife Service  
 Tony DeToy, United States Forest Service  
 Ron Flakus, Program Specialist, SD Department of Agriculture  
 Dave Ode, Biologist, SD Department of Game, Fish & Parks  
 Steve Cinnamon, IPM Coordinator, USDI, National Parks Service  
 Bob Bettelyoun, Range Conservationist, BIA  
 Dale Patterson, President, SD Aviation Association

## **II. Grasshopper Management Training**

South Dakota State University (SDSU) will work in cooperation with the South Dakota Department of Agriculture (SDDA) and USDA-APHIS-PPQ to implement grasshopper training for county weed and pest supervisors, extension agents and other interested land managers throughout the state. Extension agents will be encouraged to hold training sessions for the local interested clientele in their respective counties. These training sessions will emphasize early detection, monitoring, technology transfer, control options and programs or assistance available.

The training session is scheduled for May 12th and 13th at the VFW Club located at 401 S. Central, Pierre, South Dakota. The program will be set up in a two-day format starting at 1:00 p.m. on the first day and concluding by noon the second day.

This training session will stress the need for an early grasshopper survey to determine the extent of the potential problem. This would also help to get producers to identify the problem earlier which would improve control measures, decreasing overall insecticide use and expense.

Forecast data indicates that South Dakota may experience threatening grasshopper infestations in 1998 if certain conditions occur. The overall training objective is to provide grasshopper program guidance and field training to prepare local personnel. The proposed agenda for the initial training will include but not be limited to the following:

1. Communicating with cooperators and the public;
2. Grasshopper survey and stage of development;
3. Grasshopper management and funding options;
4. Emerging technologies;
5. Summary of agency roles and program responsibilities;
6. Analysis of historical survey data;
7. Identification of potential outbreak areas;
8. Beekeeper relations;

9. Environmental considerations and

10. Conducting site assessments.

### **III. Emergency Designation:**

An emergency designation is necessary to legally implement a grasshopper control program. Based on the 1998 outlook, a statewide designation will be prepared for the Secretary of Agriculture's signature in concurrence with the State Weed and Pest Control Commission. The designation will be tied to economic grasshopper population levels. If an infestation of grasshoppers is present at or in excess of economic thresholds and is posing a threat to neighboring lands or is posing a threat to a grasshopper control program if treatment does not occur, enforcement may be used and implemented by County Weed and Pest Boards.

### **IV. Information and Education/Public Awareness:**

The SDDA and SDSU will work cooperatively throughout the season on public awareness campaigns for grasshopper in South Dakota. The producers as well as the general public will be informed regarding the economic impact of grasshopper infestations and the means necessary to economically as well as effectively manage them with minimal environmental impact. Risk awareness and management campaigns can be developed through utilization of USDA-APHIS-PPQ 50 year infestation data and recent survey data. Survey data will be integrated into the development of outlook and distribution maps.

Timely and effective communication is necessary for successful program implementation. Communication regarding grasshopper status and pending grasshopper control programs will be coordinated through the SDDA and SDSU using such methods including: news releases (SDDA and SDSU Ag Communications); SDSU Extension fact sheets and bulletins; radio and television spots (eg. SDSU "Today's Ag", Dakota Farm Talk) and SDDA/SDSU Extension Web pages on the Internet.

### **V. Survey/Monitoring:**

Comprehensive surveying and monitoring of grasshopper populations is essential for accurate data collection, population and trend monitoring. This information can be used by land managers to determine the necessity of control programs.

Due to no new funding allocations, comprehensive grasshopper surveys have not been completed since 1995 as federal funding for traditional surveys has been severely reduced. The ability for any one agency to conduct comprehensive grasshopper surveys is subject to prioritization and funding. Therefore it is imperative that multiple federal, state, county and local land managers work cooperatively to conduct surveys throughout the season. Because of this multi-agency focus, training will be essential to provide continuity in survey techniques, data collection and to produce a uniform survey map.

County weed and pest supervisors, extension agents and federal, state and private land managers will be trained to conduct limited detection surveys beginning in June and continuing through the summer for nymphal and adult grasshopper populations. Emphasis will be placed on providing training to federal, state and private land managers.

## 1998 Grasshopper Survey Project

Nymphal grasshopper survey data is collected and utilized to determine the potential for economic damage and to prepare for timely control programs. Adult survey data is largely utilized as a forecast tool to identify potential outbreaks for the following season. The importance of this data collection necessitates implementation of a comprehensive statewide grasshopper survey project. The SDDA in partnership with USDA-APHIS-Plant Protection and Quarantine, SDSU, South Dakota Office of School and Public Lands and the South Dakota Grasshopper Management Committee will collaborate to implement such a project during the 1998 season. The following objectives will be accomplished.

1. Determine nymphal and adult grasshopper population densities on lands at risk throughout South Dakota.
2. Identify economic grasshopper infestations and provide technical expertise and assistance under control program situations.
3. Timely detection of economic, nymphal infestations in order to prevent or retard the spread of infestation.
4. Development of grasshopper forecasting and outlook information through survey of adult grasshopper populations.
5. Provide comprehensive grasshopper survey data as part of supporting information for federal grasshopper assistance requests.
6. Providing an ad hoc advisory group to the Secretary of Agriculture for assistance in grasshopper outbreak management.

Seasonal survey personnel will be employed by the SDDA. Two weeks of intensive training for seasonal survey personnel will be conducted prior to June 1, 1998. Training will be provided by USDA-APHIS-PPQ and SDSU. Training will include survey techniques, economic species identification, life stage identification, data collection, GPS operations, field safety and vehicle usage. As previously stated, the South Dakota Grasshopper Management Committee will work to provide instructional training for the county weed and pest personnel and extension agents through a grasshopper training workshop to be held in May.

Nymphal survey will be initiated preferably prior to June 1, 1998 and will proceed until approximately July 17, 1998. At this time adult survey will commence and proceed for approximately 4-5 weeks thereafter. At a minimum, adult grasshopper surveys will be conducted at the established common dataset sites (115 locations). Species data and population densities are to be collected and will provide population outlook information.

The scope of the grasshopper survey will be directed by statewide historical grasshopper population data and the current grasshopper population risk. This data will be used to determine geographical areas of survey priority. This survey initiative will be coordinated with assistance from local county weed and pest supervisors and extension agents. Survey sites will encompass primarily rangelands and pasturelands, but may also encompass right-of-ways, CRP, haylands and croplands as necessary. Survey stops will be chosen based on growing conditions, ground cover, risk of spread, type of forage/crop and historical grasshopper data.

Survey coverage will consist of approximately one stop (count) per township. As grasshopper densities meet or exceed 10-20 per square yard (in most instances 15 per square yard is the benchmark), surveyors will conduct delimiting (intensive) surveys at an intensity of approximately 1 stop (count) per square mile in all directions until densities relax to levels below 10 per square yard.

Biweekly tabular reports and color mapping enhancement will be the data management products of this survey initiative and will be developed utilizing GPS and GIS technologies.

## **VI. Control Program Responsibilities:**

SDDA - Program coordination, technical assistance for program organization, coordination of SD Grasshopper Management Committee, processing of declarations, assistance on enforcements, ensure integrity of bioagent sites, ensure consideration for endangered species, participate in necessary detection/delimiting surveys and data analysis, provide detection/delimiting survey maps, identify necessary environmental monitoring guidelines, provide general program information to media and the public.

SDSU Extension/Research - Survey and control training, technical advice on biologically sound treatment alternatives to be used as part of integrated pest management (IPM), provide technical information to media, participate in necessary detection/delimiting surveys.

County Weed and Pest Boards - Participation in detection/delimiting surveys, contract for available cost share funds, contract with applicators, organize local cooperators, establish escrow accounts, monitor control activities, ensure integrity of county bioagent releases, pay program costs in lieu of funds to be collected, request applicable cost share funds.

USDA-APHIS-PPQ - Participate in detection/delimiting surveys. Conduct crop protection programs for croplands immediately adjacent to federal rangelands in cooperation with county boards. Ensure preparation of necessary environmental documentation and monitor treatments during federal programs. Provide program guidance and technical support. Conduct the common dataset grasshopper survey. Participate as requested in additional evaluation surveys.

## **VII. Control Program Funding Alternatives:**

No state funds have been made available at this time. At this time, there have been no new line-item funds made available for grasshopper control and the USDA position with regards to the use of contingency funds for any type of grasshopper management is unclear. USDA-APHIS-PPQ indicates that there may be limited federal funds available to conduct crop protection programs in association with federal rangelands. County/local funding alternatives include special levy, state and federal agency contracts, county billing for project costs and cooperative program (ESCROW) funds. These options are fully outlined in the South Dakota Grasshopper Program Manual.

## **VIII. Management Tools:**

Recently, new technologies have emerged. These technologies include reduced rates of insecticides, modifying swath spacing, grazing management, trap cropping and hotspot treatments with emphasis on preventative management strategies. Focus must be on the prevention of large scale outbreaks. South Dakota State University in cooperation with USDA-APHIS-PPQ will provide technology transfer regarding these management tools.

## **IX. Technology Transfer:**

The Hopper program as well as the entire Grasshopper IPM User Handbook are technology transfer tools. Continued technical and programmatic technology transfer from USDA-APHIS and South Dakota State University will occur. South Dakota State University may develop demonstration areas across the state to facilitate the transfer of information regarding grasshopper management to producers.

## **X. Environmental Considerations:**

Program activities carried out utilizing federal dollars must comply with the National Environmental Policy Act (NEPA) and the Endangered Species Act (ESA) requirements as documented in a current, site specific environmental assessment (EA) to be prepared by USDA-APHIS and/or land managers. However, it is likely that minimal federal funds will be made available for control programs. If only state or private funds are utilized then compliance with label directions specific to the treatment compound is basically all that is required. Notification of beekeepers and maintaining the integrity of known biological control field insectary locations and county release sites are necessary functions and will be handled by the South Dakota Department of Agriculture.

## **XI. Beekeeper Relations:**

Many insecticides currently used for control programs are toxic to some pollinating insects (ie. honey and alkali/leaf cutter bees). Program managers will communicate with State Apiarist regarding pending programs. State Apiarist maintains periodic communications as part of normal apiary activities and can advise beekeepers within 2 miles of potential treatments sites to allow for movement or protection of bee colonies.

## **XII. Program Assessment:**

Mortality assessments are to be conducted across treatment areas after control programs are complete. Mortality averages will be used to assess the overall effectiveness and success of the program. Logically these assessments will be conducted by trained individuals representing USDA-APHIS, SDDA, SDSU and county weed and pest personnel. These assessments will be used to better manage future programs.

## **XIII. Research:**

SDDA, SDSU and the USDA-APHIS-PPQ Phoenix Plant Protection Center will play key roles. Research will focus on the continued development of reduced agent/reduced area treatment strategies (RAATs). Viable funding opportunities for priority research have been identified, focusing on collaborative funding efforts among USDA, the State Weed and Pest Commission, producer groups and industry.

The SDDA , USDA-APHIS-PPQ in Pierre and the Phoenix Plant Protection Center will focus efforts on a large block RAATs demonstration project (Carbaryl and Malathion) and a replicated 40 acre block nozzle orientation RAATs project (Carbaryl and Malathion). The projects will be conducted at rangeland locations to be determined in western South Dakota. As time and resources allow, 365 day data collection may be conducted at the 1997 RAATs project location in Fall River County to determine and document long-term grasshopper population impact.